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PPG Industries, Inc.
Intellectual Property Dept.
One PPG Place
Pittsburgh, PA 15272

EXAMINER

LAZORCIK, JASON L

ART UNIT	PAPER NUMBER
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1791

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10/18/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/828,939

Applicant(s)

SISKOS, WILLIAM R.

Examiner

Jason L. Lazorcik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-29 and 39-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-29, and 39-41 is/are rejected.
- 7) ☒ Claim(s) 29, 39 and 40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 8, 2007 has been entered.

Claim Objections

Claim 29, 39, and 40 are objected to because of the following informalities: Line 17 of the instant claim states in part that "a shaped sheet between the first and second molds seals the to are closer to one another when in the first position". The particular metes and bounds of the instant limitation can not be reasonably ascertained due grammatical errors (e.g. "shaped sheet ... seals the to"). The instant claim will not be further treated on the merits at this time. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1,2,3,4,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20, 29, 39, 40, and 41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written

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description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants amended claim 1 presently requires the first mold comprise "a marginal edge between the perimeter of the first mold and the boundary of the shaping member" such that "the first end of the at least one passageway" is "in" the marginal edge of the major surface of the first mold. Applicants specification appears to support a marginal edge portion (40) of shaping member (28), however the Examiner has found basis to support for the "marginal edge" as presently claimed.

In the context of the parent claim 1, claims 13 and 14 are understood to require a first shaping mold with a major surface comprising the shaping member. Claims 13 and 14 then require a plate member with first and second surfaces wherein the second surface of the plate member is equivalent to the major surface of the first shaping mold. The instant claims then require that the shaping member extends away from the second surface which is equivalent to stating that the shaping member extends away from the major surface of the shaping mold. Since the major surface comprises the shaping member, Applicants claim language effectively requires that the shaping mold extends away from itself. Since the metes and bounds of Applicants claimed structure are unclear, the claims are likewise rendered unclear and indefinite.

Claim 29 recites the new limitation such that "air moving through the conduit can only enter interior of the chamber through the open area". The Examiner has found

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neither explicit nor implicit support for the instant limitation in the specification as originally filed.

Claim 41 recites the limitation such that "the wall mounts the press face between the perimeter of the shaping member and the first end of the at least one passageway". The Examiner has been unable to find support for the instant limitation in the specification as originally filed.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1,2,3,4,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20, 29, 39, 40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the marginal edge of the major surface of the first mold" in line 17. It is unclear whether applicant intends the claimed "a marginal edge between the perimeter of the first mold and the boundary of the shaping member" as the antecedent for the claimed "the marginal edge of the major surface of the first mold". It is therefore the Examiners assessment that there is insufficient antecedent basis for the limitation of "the marginal edge of the major surface of the first mold" in the claim.

Claims 14 and 16 recites the limitation "the marginal edge portion". There is insufficient antecedent basis for this limitation in the claim.

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Claim 29 recites the limitation "the enclosure" in line 24. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

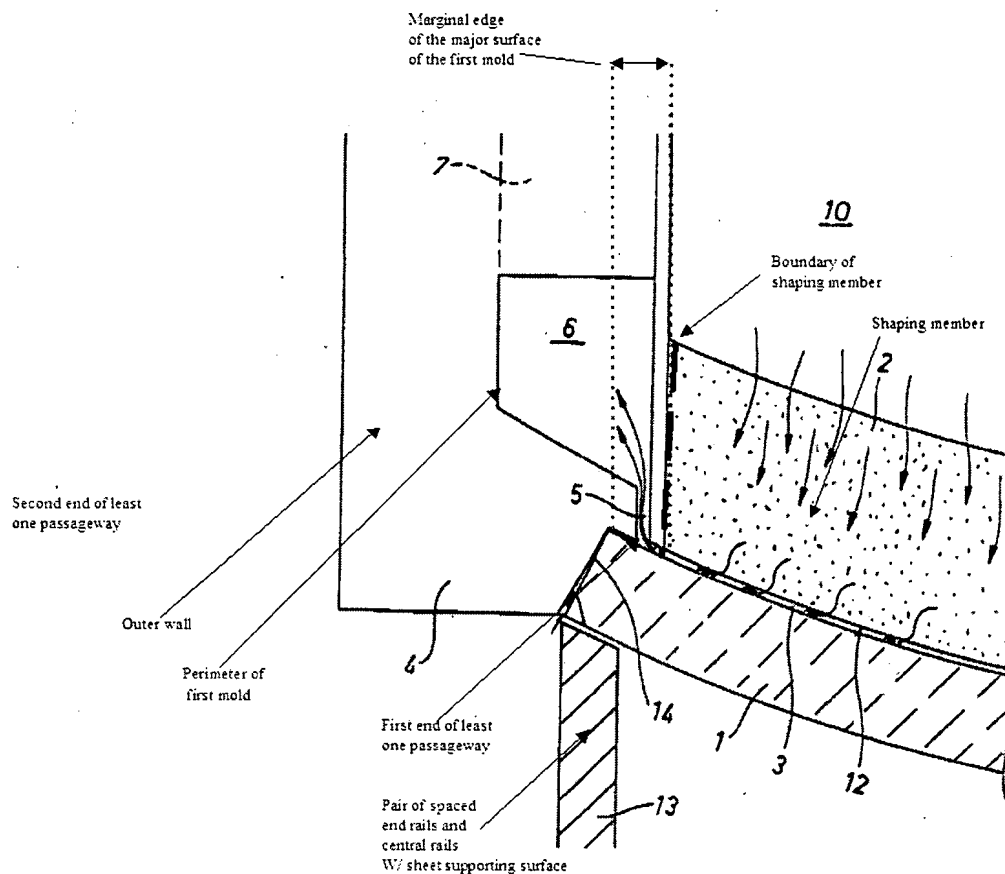
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,4, 6, 7, 12, and 41 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Montonen (US 5,383,947).

With respect to the apparatus set forth in applicants claim 1, Montonen teaches a ring mold (13) or second mold comprising a pair of spaced end rails and central rails with an I shaped cross section [**Claim 12**] and presenting a continuous sheet supporting surface [**claim 2**]. An upper first mold comprises a central shaping member (2) having a peripheral boundary, an outer wall (4) securely mounted to the first mold defining an "perimeter of the first mold" [**Claim 4**], and "a marginal edge" located between the boundary of the shaping member and the perimeter of the first mold. "At least one passageway" (5) has a "first end" located in the marginal edge of "a major surface of the first mold" which faces the second mold.

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It is evident from the above figure 2 that near a closest approach between the upper and lower molds, the outer wall forms an enclosure with said first and second molds wherein the outer wall is "mounted to" the second mold, surrounding the central rails and end rails [**Claim 6**]. The outer wall of the first mold has one part of an *aligning arrangement* [**Claim 7**] (e.g. surface angled from vertical) which cooperates with an aligning arrangement of the second mold (eg. the rails) as claimed. Although Montonen is silent regarding the claimed elevator arrangement, such an arrangement is either deemed an integral and implicit component of the disclosed apparatus or alternatively would be considered a trivial modification over the disclosed apparatus by one of ordinary skill in the art at the time of the invention. Specifically, Montonen

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discloses a press bending station comprising upper and lower molds, and it would be a merely obvious extension over the teachings to incorporate said elevator arrangement in order to effect the relative positioning of said molds in order to load and unload glass sheets and/or to apply a bending force thereto.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Montonen (US 5,383,947) as applied to claim 1 above, and further in view of Jacques (5,437,703).

Montonen fails to explicitly set forth a case wherein the central rails are secured in position and the end rails are pivotally mounted to pivot from a first position providing

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a generally horizontal support for a sheet to a second position where portions of the ends of the end rails are raised above the central rails. Jacques presents a ring mold having movable ends providing said first generally horizontal support (Fig 9) and said second raised configuration (Fig 11) to achieve deep and/or complex bent shapes (Abstract).

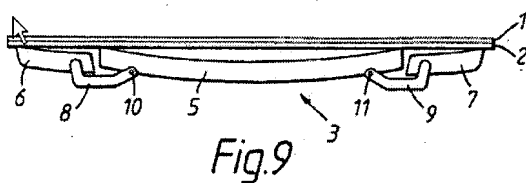


Fig. 9

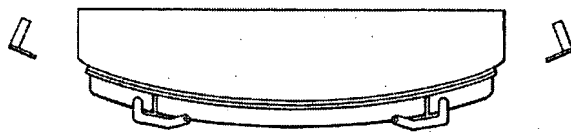


Fig. 11

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention seeking to achieve a deep bend in a glass sheet to utilize the reconfigurable ring mold as taught by Jacques in the sheet molding system taught by Montonen.

Claims 8 through 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montonen (US 5,383,947) as applied in the rejections of Claim 1 above and in further view of Skeen (US 6,629,436 B1).

With respect to **Claim 8**, Montonen teaches that the central and end rails have a "I" shaped cross section (as evidenced in the Fig 2 excerpt above) while failing explicitly set forth that they may be constructed with a "T" shaped cross section as claimed. Skeen teaches (Column 2, Lines 3-6) that glass bending ring mold "rails themselves are usually pre-shaped to have a shape to support the unbent sheet while also supplying the mold for the curved or bent sheets" and that (see Fig 5 excerpt and Column 2, Lines

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36-39) "the rail member itself may be a bar member that supports the glass sheets slightly inboard of the glass sheets periphery or it may be an "L" or "T" shaped member." It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the central and end rails of the Montonen process to utilize a "T" shaped member as taught by Skeen. This would have been an obvious modification to one seeking to provide adequate support to both an unbent and bent glass sheet.

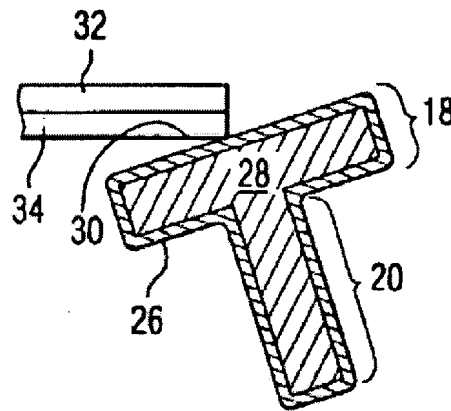


FIG. 5

Regarding **Claim 9** and in light of the rejections of Claims 6 and 12 under 35 U.S.C. 102(b), Montonen teaches that the outer wall connects to the outer surface of the shaping rail when the first and second molds placed in position to form the claimed enclosure. Where the use of a T rail is deemed obvious in view of the Skeen teachings, it would present no more than a trivial extension over the prior art teachings to insure that the outer wall is connected to the outer surface of the vertical member of the T rail.

Claim 10 is obvious in light of the combined rejections of Claim 8 and 9 above.

With respect to **Claim 11**, it is understood that the process of *connecting* the surrounding flange (17) portion of the outer wall to the outer surface of the horizontal member of the "T" rail, as set forth in the rejection of Claim 9, results in a functionally equivalent structure to the one claimed wherein "the outer wall is portion of the horizontal member of the "T" farthest from the open area".

Claim 13-19, 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Montonen (US 5,383,947) in view of Posney (US 3,595,636).

With respect to claims 13 and 14, Applicant sets forth limitations drawn to "a plate member" wherein the shaping member extends away from one surface of the plate member and "a plenum" exists over a portion of an opposite surface. The claimed structure is understood to serve as a support bracket or supporting structure for the support member. The Montonen apparatus discloses first and second plenum chambers (6 and 10, respectively), vacuum pump (8), conduit (7), valve(9) and teaches of a support plate adjacent to the identified "boundary of the shaping member" (See above annotated figure from Montonen). The Montonen plate presents at least one surface which is coincident with the major surface of the first mold, there is a plenum located over a portion of the plate member, and the shaping member extends away from the surface of the support member. Further, It is evident from the prior art structure that the Montonen plate member serves a functionally equivalent role as applicants plate member, namely to support or retain the shaping member. In the

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absence of any substantially unexpected results derived from the claimed structure, it is the Examiners position that any differences between the mounting plate member of the prior art and that claimed by Applicant would have presented a merely trivial modification to one of ordinary skill in the art at the time of the invention.

With respect to pending claims 14-18, Applicant requires that "the at least one passageway is "one of a plurality of spaced passageways". The plurality of passageways is further subdivided into "a first plurality of passageways" with a terminal end in the marginal edge of the major surface of the first mold and a second plurality of passageways "passing through the shaping member"

Now, regarding the second plurality of passageways, Montonen teaches that the shaping member is constructed of a porous material which provides fluid communication across said shaping member. The reference further teaches that the porosity of the shaping member can be specifically tailored between various sections of the mold. The reference further teaches that the surface of the mold may be provided with larger perforations (e.g. in the range of 1-2 mm), grooves, and/or "a larger individual suction port (Column 2, lines 6-10 and lines 53-54). Each of these structures is understood to provide a "second plurality of passageways " having a first end at the press face that decreases in size at a spaced distance from the press face to provide a recess in the press face" [Claim 21].

Montonen teaches a continuous groove or "slotted annular structure" which emerges in the marginal region of the major surface of the first mold but remains silent regarding the presence of a plurality of holes in said marginal region. Posney teaches a structured mold having an apertured wall contoured to the desired shape of the bent glass sheet and having elongated, shallow grooves and a row of apertures contained therein for delivery of fluid under pressure to the surface of the glass sheet. With respect to the structure of the mold surface, Posney clearly sets forth that the aperture structure in the disclosed mold is "less fragile than molds slotted throughout their entire thickness" (Column 2, Lines 63-69).

Where the peripheral annular groove of the Montonen mold is understood to embody a structure "slotted through the entire thickness", it would have been obvious to adopt the aperture structure taught by Posney. Restated, it would have been an obvious modification to replace the peripheral annular groove of Montonen with a "first plurality of passageways as taught by Posney. The modification of the Montonen structure to include holes or apertures within the annular groove would have been an obvious alteration to one of ordinary skill in the art at the time of the invention seeking to make the mold structure less fragile as taught by Posney.

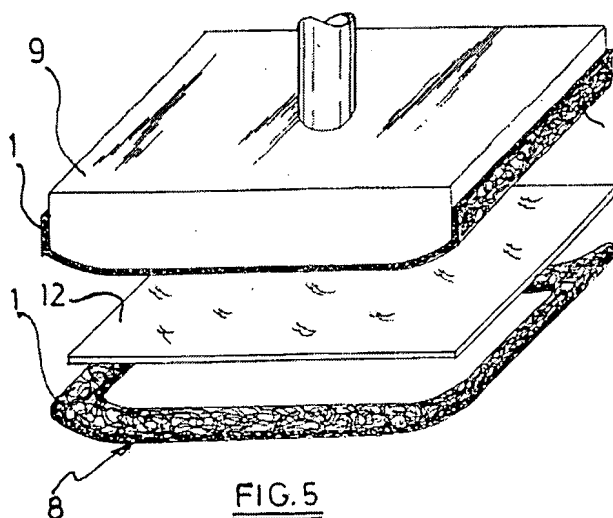
Claims 20, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montonen (US 5,383,947) and/or Posney (US 3595,636) as applied above to claims 1, 21, and 17, respectively, and further in view of Vanhuysee (US 6,276,173 B1).

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Montonen teaches that the shaping member may be encompassed in a mesh mat (15) (Column 3, lines 9-25). Montonen fails to explicitly limit the weave density with respect to the size of the openings of the first or second passageways or that the sheet supporting surface of the second mold should be provided with a mesh cloth covering in addition to the one provided upon the press face of the shaping member.

With respect to **Claims 20**, Vanhuyse teaches that “the metallic covering—and the mesh when present—cover the perforations (of the mold surface), so that they partially lose their function...which is to promote the flow of air” and “The use of a coarser mesh has a positive effect on the air permeability, but in turn results in an even more frequent contact between the mesh and glass”. While Vanhuyse sets forth the relationship between covering weave density for a ring mold in a glass pressing operation, the tradeoff between adequate air flow and mold face contact with the glass sheet would reasonably be expected to apply for a covering on a press member of the type set forth in the present invention. Specifically, since the role of the passageways in the first mold, as indicated by Montonen, is to provide air flow at the molding surface and a mesh covering is provided on said surface, it would be obvious to one of ordinary skill in the art at the time of the invention to optimize the weave density of said covering as taught by Vanhuysee. It would be obvious to perform such an optimization in order to provide a covering weave density between a too tight weave which would restrict air flow through the passageways and a too loose weave potentially marring the glass surface by allowing mold face contact on the glass sheet.

Regarding **Claim 23**, Vanhuysse teaches (Column 1, Lines 14-25) "the contact member or covering can for example be used to cover the support rings (pressure and tempering rings)" and "the actual moulding means, such as for example the pressure moulds, can also be covered with the covering." It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize an appropriate fabric covering on both the first and second molds as taught by Vanhuysse in order to minimize direct contact of either of said mold faces with the glass surface in order to minimize undue marring of the glass surface.



Claims 24, 25, 26, 27, and 28, 29, 39, 40 rejected under 35 U.S.C. 103(a) as being unpatentable over Montonen (US 5,383,947) in view of Kuster (US 5,713,976).

As indicated above, Montonen discloses essentially every element of Applicants claimed bending apparatus, however the instant reference remains silent regarding the details of the broader pressing station. As indicated to Applicant in previous Office Actions, the Kuster reference teaches a sheet bending apparatus comprising a concave

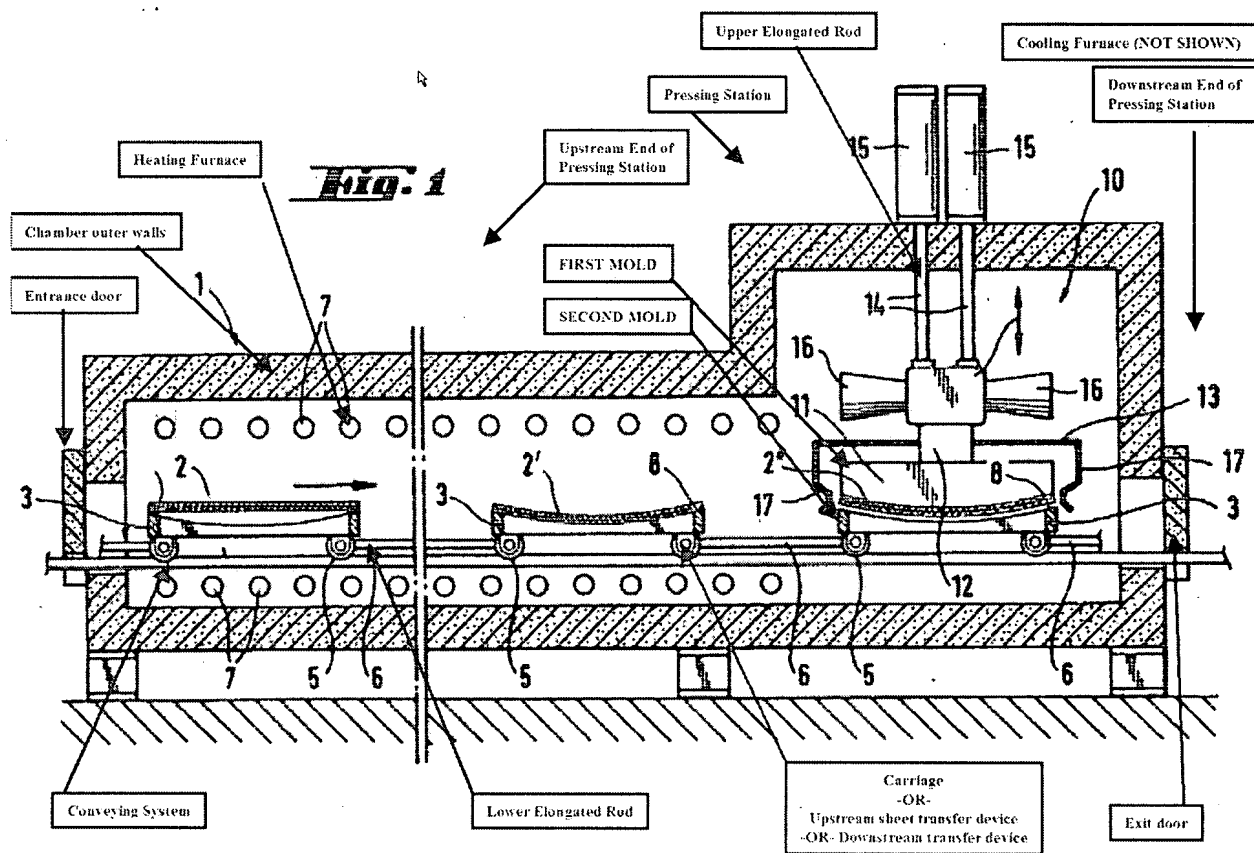
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annular bending block serving as both a bending ring and means for conveyance and a convex bending block acting from above on the surface of the glass sheet.

Kuster further teaches the integration of the mold arrangement into the furnace and pressing station. Specifically, the following excerpt Figure 1 from the Kuster reference has been edited with examiners annotations in order to assist correlation of prior art teachings with applicants claimed elements in applicants chosen lexicon. Details of the operation are also set forth in the immediate reference Column 3, line 56 through Column 4, line 49.

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the Montonen pressing arrangement in the broader glass sheet pressing station as taught by Kuster. Such a substitution would have been recognized as an obvious alternative to one of ordinary skill in the art at the time of the invention seeking to make use of the Montonen device.

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With respect to claim 39, Kuster teaches the use of a lifting mechanism (15) in order to adjust the spacing between the first and second molds or to “move the second mold towards and away from the first mold”. Kuster is silent regarding the specific nature of this lifting mechanism, however it would be well within the prevue of one of ordinary skill in the art at the time of the invention to select an appropriate lifting means (e.g. a piston or a hydraulic jack). Specifically, a piston or a hydraulic jack would have been an obvious choice for adjusting the separation between first and second molds since these devices utilize few moving parts yet are capable of generating large amounts of lifting force.

With respect to **Claim 40**, the fan (16) described in the Kuster disclosure, here held equivalent to the Montonen fan (8)) and likewise held functionally equivalent to the claimed vacuum pump, must implicitly be in fluid communication with the conduit or "the chamber" in order for the apparatus to function as disclosed. Although not explicitly set forth by Kuster, said fan must implicitly be in fluid communication through a hole in the outer wall of the conduit in order to draw the disclosed "partial vacuum" (column 4, line 33) within the casing.

Response to Arguments

Applicant's arguments with respect to claims 1-33 and 37-40 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Lazorcik whose telephone number is (571) 272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLL


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